RECLAMATION

Managing Water in the West

Reclamation Safety Program

U.S. Department of the Interior
Bureau of Reclamation

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MEMORANDUM

To: All Bureau of Reclamation Employees

From: Alan Mikkelsen
Acting Commissioner

Subject: Reclamation's Commitment to Safety

Since its creation in 1902, the organization we know as the Bureau of Reclamation has been at the forefront of vital projects that have brought water and power to the American West. Throughout that 115 year history, as we have built and operated these major water and power projects, we have strived to promote safety among our employees and our partners.

Today, of course, the days of massive construction projects such as Grand Coulee and Hoover – with their accompanying risk for workers – are part of our history. Yet, our responsibility to safely operate these and countless other projects requires us to think of safety and occupational health in a different way.

Whether you report for work each day at one of Reclamation's facilities where potential hazards are all around you, where you must be continually vigilant to identify potential issues, or whether you report to a climate-controlled office, it is important that you be mindful of safety in your workplace. Not only for yourself, but also for your coworkers.

This guide to Reclamation's Safety Program provides a glimpse into the varied program components that work together to create an accident-free environment for each of us. I salute the effort of the team members who stepped up to assist with the Reclamation Safety Action Plan. I urge you to read this guide and identify the ways you can help promote a culture of safety for all employees.

As we continue serving America through our mission to manage water and power in the West, let us redouble our efforts to focus on safety. A safe workplace begins with each employee being aware and looking out for potential hazards that could result in an accident. It is promoted through every executive and manager saying loudly: "I Care About Safety."

Thank you for what you do to help successfully accomplish our mission. Each of us owe it to our multiple stakeholders and – even more importantly – our families to ensure we promote a healthy and safe working environment.

Distribution E

Contents

I. Purpose of This Document

The purpose of this document is to provide information to staff throughout the Bureau of Reclamation (Reclamation) which will promote a better understanding of the Safety and Occupational Health Program. This document includes the results of the actions taken by Reclamation that address the findings of the 21 safety action teams that were created by the Reclamation Safety Action Plan.

The goals and objectives of Reclamation's Safety and Occupational Health Program are fully aligned with the strategic safety plan from the Department of Interior (DOI). The details of the strategic plan can be found here: https://safetynet.doi.gov/information/general/strategic_plan/index.html . The goals of the Departmental of Interior strategic safety plan are:

1. Enhance the role of leadership and management in promoting a strong safety culture.
2. Enhance employees' inclusion, and when applicable, their respective Bargaining unit representatives', participation and engagement in achieving safety and health commitments.
3. Prevent exposure to hazards and mitigate risk through recognition and prevention programs and processes.
4. Enhance internal evaluation and analysis processes to validate the effectiveness of the safety and health program.
5. Improve occupational safety and health training and awareness throughout Reclamation.
6. Implement and continuously improve the occupational safety and health program.

Reclamation employees define our character, culture, capacity to perform, and our ability to achieve our mission. Reclamation is committed to conducting our work safely in a wide variety of environments (some hazardous), and providing our employees, visitors, and partners a safe environment on Reclamation-managed facilities and lands.

This document explains how Reclamation management, its' employees, and the safety and occupational health community will work together to ensure Reclamation has a strong and effective Safety and Occupational Health Program.

Program Objective

The objective of the Safety and Occupational Health Program is to manage the safety and health risks to Reclamation employees, contractors, and the public by identification, assessment, and mitigation of those risks as appropriate. The Safety and Occupational Health Program provides the management tools required to identify conditions with potential for loss or injury and methods to assess and mitigate those hazards.

II. Background

Reclamation has a long history of addressing safety and occupational health in its daily work activities and mission accomplishment. Lessons learned from Reclamation's numerous construction projects has led to current safety standards in PPE usage, confined space ventilation and entry procedures, etc.

In the years that followed, with Reclamation's construction of dams across the western United States, it was recognized that having a strong safety program in place supported consistent and timely completion of the construction work. Beginning in the 1940s, Reclamation regularly published safety newsletters, detailing safe work practices and providing accident information to help prevent similar events elsewhere. It was during this time the first Reclamation safety requirements manual was developed. It was the forerunner of today's Reclamation Safety and Health Standards, commonly known as the "Yellow Book."

OSHA published the first federal safety regulatory requirements in the early 1970s. Those requirements were said to have been based, in part, on existing requirements established by Reclamation and the US Army Corps of Engineers.

Recognized bargaining representatives in the Federal sector have shared their safety commitment for Reclamation bargaining unit employees and negotiated safety provisions in their respective negotiated bargaining agreements. Changes to existing practices that impact their bargaining unit members should be submitted as proposals and allow sufficient time for impact and implementation bargaining if requested.

Current Reclamation Safety and Occupational Health Program

Reclamation's Safety and Occupational Health Program is defined at its highest level in the Reclamation Manual in policy SAF P01. The policy defines the program as applying to all Reclamation employees and describes the responsibilities of key personnel, including:

- Commissioner
- Deputy Commissioner, Policy Administration and Budget
- Director, Security Safety and Law Enforcement
- Reclamation Leadership Team
- Supervisors
- Employees
- Safety and Occupational Health personnel.

The policy establishes that the program is to be developed and implemented based on the principles contained in ANSI Z10[1] (American National Standard for Occupational Health and Safety Management Systems). The policy also establishes key expectations to ensure that safety becomes everyone's responsibility to ensure everyone leaves Reclamation facilities and arrives safely. In practice, the current program is implemented locally at each area or field office with coordination from the regional safety offices and the Reclamation safety office. The key entity for coordination of safety and occupational health issues across Reclamation is the Reclamation Safety and Health Council. It is comprised of the Regional Safety Managers and the Reclamation Safety and Occupational Health Manager. The council provides guidance and advice to managers and develops tools to help managers accomplish their safety and occupational health responsibilities (including job hazard analysis, workplace inspections, industrial hygiene, exposure assessments, ergonomic assessments, training and education, and occupant emergency training) to support execution of Reclamation's mission. The council also supports programs for specific occupational risks including hazardous energy control, permit-required confined space entry, underwater diving, and rope access.

The bargaining board employees are represented by bargaining units tied to an exclusive representative union. Other employees are represented by other unions and they all should have the opportunity to participate in all phases of the safety process.

One of the fundamental principles of Reclamation leadership and management has long been to rely heavily on the knowledge, skills, and partnerships at local levels to implement beneficial and practical solutions. In such an environment, it is expected that implementation of the Safety and Occupational Health Program will exhibit some variation from one office/facility to another as different facilities can have substantially different hazards to be mitigated. However, it is the role of regional and corporate safety offices to advise, educate, and evaluate local offices to ensure the local programs are effective in identifying, evaluating and mitigating the unique set of hazards for each of those locations.

Via internal and external reviews, the following have been identified as necessary attributes of a successful Reclamation Safety and Occupational Health Program:

- Leadership and management commitment to, and communication of, safety and occupational health as a value and priority objective for the organization.
- Existence and staffing of safety and health offices at various levels of the organization with direct access to leadership personnel to quickly address high risk situations.
- Established systems for policy; worksite analysis; deficiency tracking; and hazard identification, evaluation, and control.

[1] ANSI Z10 encourages integration with other management systems to facilitate organizational effectiveness using the elements of the Plan-Do-Check-Act (PDCA) model as the basis for continual improvement.

- Safety and occupational health is instilled as an organizational value at all levels of the organization, meaning that it is incorporated into everything we do at Reclamation that accomplishes our mission.
- All employees, especially supervisors/managers/executives, have training and understand their responsibilities for safety and occupational health.
- Appropriate safety and occupational health systems (i.e., elimination, substitution, or engineering controls) are being incorporated into new or modified facilities, tools, equipment, and machinery.
- Accountability systems for safety and occupational health implementation are established at the working level.
- Experiences and lessons learned are shared throughout the organization.
- Unintended safety impacts of cost saving initiatives are recognized and mitigated.
- Job hazard analyses are consistently prepared, of high quality, and reviewed by everyone involved in the work.
- Priorities and processes exist for tracking and correcting identified safety and occupational health issues.
- Safety and occupational health inspections are consistently integrated with other ongoing inspection programs.
- Key safety metrics are reported regularly at a facility level.
- Training is available and provided to all that require it for specific hazards present in Reclamation facilities.
- Safety and occupational health objectives have been transformed from competing with workload accomplishment to a complimentary multi-objective approach that helps get work accomplished more efficiently and consistently.
- Safety and occupational health program elements are naturally extended into new areas of operations (i.e. the natural resources management employees).

Reclamation will seek to benchmark these attributes against other similar organizations. Historically, Reclamation's key outcome metrics compare favorably with other organizations such as the US Army Corps of Engineers and the Tennessee Valley Authority that share similar exposure and hazards. However, there are always opportunities for improvement.

III.Program Elements

Element 1 Management and Leadership

Each supervisor/manager serves as the motivating force that ensures a successful program and communicates the importance of safety and occupational health to all employees. Where

managers clearly demonstrate the primary importance of safety and health for everyone at their worksites (through their involvement, support, and example), the performance of safety and occupational health programs is consistent and sustained (and many times improved) over time. Managers must consistently participate in all significant aspects of the safety and health program, such as site inspections, incident reviews, committees, and program reviews. Managers must set an example of how to follow safety and health requirements, and give visible support to the safety and health efforts of others. Managers and supervisors will be held accountable for the safety and health of their employees.

Safety is a key factor in the performance standards of every supervisor and manager's performance plan. Senior management gives consideration to safety and health during budget formulation, and ensures local, regional, and corporate funding for the Safety and Occupational Health Program activities. Mangers ensure funding for staff, space, equipment, training, hazard abatement, facility repair, and special contingencies. Some funding is also allocated for awareness and educational programs.

Managers are responsible to ensure that personnel will be readily available in sufficient numbers and have the requisite skills, training, and authorities to accomplish the assigned tasks and to perform in a safe and efficient manner.

Managers ensure that a clear, written Safety and Occupational Health business practices is developed that covers all workplace conditions, operations, and employees. Managers and supervisors communicate the business practices to all employees at every position. As well to contractors and visitors, so everyone understands that safe operations are a value that must be embedded in Reclamation's culture.

Managers can ensure the best value in contract awards by following the FAR 42.1503(4)(d) which considers past performance of the contractor. When awarding contracts safety performance should be considered. For information on past performance mangers should use the Past Performance Information Retrieval System (PPIRS).

Senior management is directly involved in setting both leading and lagging metrics/standards. They also participate in encouraging and rewarding employees for demonstrating both adherence to the desired practices for safe operations and commitment to identifying and mitigating hazards in the workplace. Reclamation executives and managers transmit to targeted audiences highlights of major safety initiatives, success stories, lesson learned, exceptional safety performance and other safety related activities. Managers must always stress commitment, involvement, and accountability to supervisors and staff.

Program Management '

Reclamation follows the Plan, Do, Check, Act model (PDCA) for continuous improvement for the implementation of the safety program as described in ANSI Z10.

Plan

Elements of the planning phase include:

- Annual Safety Plans;
- Establishment of the annual Commissioner's Safety Award Criteria;
- Updating of guidance documents.

Elements of Do phase include:

- Job hazard Analysts;
- Local work planning;
- Employee and bargaining unit participation.

Elements of the Checking phase include:

- Annual safety inspections;
- Annual self-assessment;
- Regional area office reviews;
- Reclamation reviews of Regional safety performance.

Elements of the Acting phase include:

- Data collection;
- Identification of potential changes to improve results;
- Updating guidance and tracking tools.

Each year Reclamation presents the Commissioners Safety Award. This award of merit recognizes the region that has most exemplified high standards for a safe and healthful

environment by improving the safety and health culture to move Reclamation to a lower risk exposure in accomplishing its mission. The winning region has strived for the prevention of accidents that may cause serious injuries or fatalities. It has also improved the region's ability to identify and abate unsafe conditions and practices.

Element 2 Employee Participation

Employees can have direct and meaningful participation in the safety and health program in a number of ways: safety committee membership, exercising stop work when necessary, suggestion program, safety funding initiatives, reporting of unsafe conditions or procedures, safety meeting presentations, dive team membership, climb team membership, and contributing to incident investigations all provide opportunities to be a part of assuring a safe and healthy work environment.

Performance Reviews

Mid-term and annual performance reviews provide an opportunity for employees to discuss safety and occupational health matters with their supervisor. While employees should feel free to have these discussions with their supervisor at any time, these events provide a time to address concerns for conditions, equipment, training, or other factors that may be causing uncertainty about the safety of accomplishing job assignments and/or mission responsibilities. This is an ideal time to review the individual development plan (IDP) to identify any safety or occupational health related training needed to support safely and efficiently conducting the employee's duties.

Safety Committees

Safety committees are present where there is a need. They have written charters and defined responsibilities. Meetings are held and minutes are kept and distributed to all staff. Membership is generally representative of management, line supervisors/team leads, and employees from various areas. Committees are provided time, training and resources to improve the Safety and Occupational Health program.

Collateral Duty Safety Representatives

Collateral duty safety representatives (CDSR) assist managers, supervisors and safety and occupational health managers in implementing the Reclamation Occupational Safety and Health Program at the Facilities to which they are assigned. While CDSRs generally are not trained safety and occupational health professionals, they are coached by such professionals. They play an important role in: goal setting; addressing problem areas; buy-in from a full cross-section of the facility; and training on safety topics most relevant to the areas that they are assigned to support.

The Safety Factor

The safety factor is a quarterly newsletter on safety across Reclamation. It presents topics of interest about safety issues at different locations around Reclamation. It is method of sharing safety issues and solutions to common safety challenges. Employees can submit safety articles and stories to the Safety Factor for publication and distribution to all Reclamation Employees. The sharing of information can help others become aware of potential hazards and how to mitigate them.

Public Affairs Communication Products

Employees can provide input to a product that the public affairs office produces: the annual safety calendar; and safety posters.

Participation on Safety Aggregate Facility Evaluation (SAFE)

The Safety Aggregate Facility Evaluation (SAFE) is a self-evaluation of the safety program at each Reclamation facility. Each site's management team completes the evaluation form. Employees can participate by being a member of the site's evaluation team, or by being an interviewee during the evaluation process.

First Aid Training

Most Reclamation Offices offer free first aid training to all their employees. First aid is the assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening, and/or promote recovery. When an accident or incident occurs, persons with first aid training can play a significant role in minimizing the harm until trained professionals can arrive to provide the needed care. Minimizing serious injury allows Reclamation to keep its employees on the job to deliver water and power.

Rescue Team Membership

Several of the larger or more remote locations offer confined space rescue team membership. This team is involved in the rescue and recovery of victims trapped in a confined space or a place accessible through confined spaces, such as underground vaults, storage tanks, or pipelines.

Suggestion Program

Many locations have their own suggestion programs. Reclamation has a Reclamation wide suggestion program located within the Safety Management Information System (SMIS). In this system any employee or supervisor can report unsafe conditions, defective equipment or any other hazardous situation.

Element 3 Hazard Recognition and Prevention

Controlling worksite hazards requires programs that identify, evaluate, and mitigate potential risks in a timely and effective manner. The Safety and Occupational Health program is able to demonstrate that comprehensive policies and procedures exist so that all worksites, jobs, equipment, and facilities are properly assessed to identify potential hazards that might threaten employee safety. Inspections are conducted by trained staff with the requisite skills to address the specific worksite and operations in question.

After assessing each hazard, supervisors develop one or more controls using the hierarchy of controls that either eliminate the hazard or reduce the risk (probability and/or severity) of a hazardous incident occurring. In developing controls, supervisors consider the reason for the hazard, not just the hazard itself. The decision is made at this point as to whether the hazard can be eliminated or must remain in the workplace in order to accomplish the mission. If they must remain, then in most cases there are consensus standards that require controls or countermeasures be put in place to insure employee safety? The hazard is reassessed to determine a residual risk once controls are in place. Risk decisions are always based on the residual risk. The process of developing and applying controls and reassessing risk continues, and may require assistance from Safety and Occupational Health personnel, until an acceptable level of risk is achieved or until all risks are reduced to a level where benefits outweigh the potential cost. That is the point to which a decision can be made to take the risk or not.

Management of change

Management of Change is a best practice used to ensure that Safety and Occupational Health risks and hazards are properly controlled when Reclamation makes changes to their facilities, operations, or personnel. When implementing changes Safety and Occupational Health reviews can help ensure that new hazards aren’t inadvertently introduced and the risk levels of existing hazards aren't being increased.

Effective management of change involves review of all significant changes to ensure that the highest practical level of safety will be maintained after the change has been implemented. From this evaluation, the proposed change can either be set for implementation, amended to make it more safe, or rejected entirely. Should the change be implemented, personnel will be informed about the change and how to maintain a safe workspace in the new environment.

Worksite Analysis

A Job Hazard Analysis, or JHA, is a process for breaking down a task or process into its component steps and then evaluating each step for hazards. Each hazard is then mitigated or a method of worker protection (safe practice or PPE) is identified. Additional requirements such as worker training, certification, authorization, or additional supervision may also be identified. While the analyses for some tasks are very detailed, for many tasks a thorough review of the operation or work plans by the affected people is usually sufficient. The final product of a

JHA is a written document outlining the safe operation for a particular task or process.

To make your job hazard analysis useful, the JHA answers the questions of how to do the task by breaking the task down into small individual elements. By looking at the task in a step by step manner it will help your efforts to eliminate the hazards and implement hazard controls. Information obtained during a job hazard analysis is used to incorporate hazard control measures into a task.

After reviewing the list of hazards, consider what control methods will eliminate or reduce them. The most effective controls are engineering controls that physically change a machine or work environment to prevent employee exposure to the hazard. The more reliable or less likely a hazard control can be circumvented, the better. If this is not feasible, administrative controls may be appropriate. This may involve changing how the task is performed. A discussion about the recommendations with all employees who perform the job is held and their comments and recommendations are considered and evaluated. All those who are exposed to the hazard must sign the JHA prior to performing the work. Ultimately the manager or supervisor in charge must make the determination about the effectiveness of the controls and risks that must be mitigated.

Industrial Hygiene

The goal of the employee exposure sampling is to provide an accurate measurement of employee's contact with hazards during the work shift. Sampling is done using an approved method to collect samples of physical hazards (e.g. noise, heat stress) or chemicals (e.g. vapor, fumes, mists or particulates). Sampling and analysis methods must be followed which are designed for the particular hazard to be sampled. The NIOSH Manual of Analytical Methods or OSHA Salt Lake City lab method should be used. In most cases, the collected sample is sent to an off-site laboratory for analysis. Some techniques use meters that measure the hazard in real-time.

After receipt of the monitoring results, the sampled workers are notified of the monitoring results in writing. This notification of monitoring results must be made directly to the affected worker. The notification must include a statement that the specified results level has been met or exceeded. If exceeded, the description of the corrective action being taken to reduce the worker exposure below the specified level is also included in the notification.

Program Involvement

Employees have the opportunity to be a part of the safety process in many different ways. Employees can be as active in the safety process as they choose, each of the following elements offer different opportunities to be a part of the safety system.

Inspections

A system has been established to identify and correct workplace health and safety hazards. Employees can be a member of an inspection team. Annual inspections are conducted and

abatement actions are taken. Hazards can be prioritize using a risk rating matrix. Corrective actions, and status reports are available to employees.

Hazard Control and Abatement

Most corrective actions are carried out without delay. A Reclamation hazard reporting/corrective action tracking system is in development. It was developed by USGS and is currently used by them to track hazards and abatement. One of the most important features of this system is the assignment of a risk assessment category (RAC) to establish a reasonable priority for correcting the hazardous condition or situation.

Operational Hazard Analysis

A written policy is communicated requiring a JHA for new, on-going, and changed operations. JHAs are reviewed/updated every year. Safety and Occupational Health staff and management should be adequately involved in assessing, advising, and approving new or modified operations/jobs to ensure that Safety and Occupational Health ramifications are considered and resolved in a timely fashion.

Currently each region is using the Dam Safety and Information System (DSIS) for overall Reclamation safety and occupational health hazard reporting and tracking. In addition, each region is using their own system to track deficiencies not meeting the DSIS reporting criteria. Currently, plans are being developed for a shift to the USGS Inspection and Abatement System to cover all deficiencies within Reclamation.

Element 4 Program Implementation

Each region develops a safety action plan annually. A best practice that is recommended in addition to the regional plan is for each facility to develop their own unique annual facility safety plan. The plans will list the annual safety goals, funding sources for any tasks requiring funds, how inspections are to be performed, and specific site safety rules if needed.

The Reclamation safety office maintains and updates the Reclamation Safety and Health Standards (RSHS).

The Reclamation Safety Office coordinates with the regions to perform serious accident investigations. This is in addition to the regions doing their own incident investigations and near miss follow-ups.

Several regions have construction field offices where there are additional safety professionals assigned to help contractors comply with the RSHS.

Each region tracks its own safety performance and reports to the Reclamation Safety Office annually. The Reclamation Safety Office reports on to the Department annually on safety

performance, and sends a separate report on the state of safety and health to OSHA each year. Internally, the Reclamation Safety Office sends a report to the DASHO each year on the state of Reclamations' compliance with established internal controls.

Element 5 Training and Awareness

The regions ensure that their professional staff and collateral duty safety representatives are properly trained and educated on the duties they need to perform. Safety committee members are trained on various aspects of safety to help them become more effective committee members. The Reclamation Safety Office holds safety workshops for safety professionals and operating managers triennially. The regions hold safety training conferences for their management and staff. The specialty service groups have segments of their conferences devoted to safety. The area offices have localized safety training for all employees. The Human Resources Department has safety training for employees and supervisors. They also holds new employee safety training that is generally applicable to all employees. Additional special safety training is given to those employees going on special assignments such as emergency response or disaster deployments.

Whatever the role of the individual is in the safety process. The importance of an individual development plan (IDP) is important. The IDP identifies opportunities to align job duties with the employee's personal goals. It is also important to get the supervisor's input to align the organizations goals and objectives into the plan. This allow the employees to map their career and review on a regular basis to ensure that they are keeping on track and making progress towards their goals. The result should be helping the employees reach short and long-term career goals, as well as improve current job performance.

Safety awareness is provided by safety alerts provided by the regions. By the Reclamation Quarterly publication, the *Safety Factor*. Some regions also have monthly safety newsletters. Reclamation has also a safety calendar, and safety posters from the commissioner's office.

Because of the supervisor is the direct link between management and the workforce. A specialize safety training program has been developed for supervisors. The training program provides insight on how to: help shape the safety culture; explain the roles and responsibilities of the supervisor in the safety process; recognize workplace hazards; use communication techniques with employees, and identify and mitigate complacency on the job.

Element 6 Public Safety

Reclamation's public safety efforts are focused on the facilities. Reclamation will continue to work toward improving infrastructure and collaborating with state and local governments and law enforcement personnel to reduce injuries at our facilities. The risk management process

begins with establishment of the Reclamation policies, process, accountabilities, and decision-making criteria for management of public safety risks. The acceptable level of risk is a societal value that may change over time and with changed circumstances. Ultimately, the legal and regulatory systems provide the process for determining acceptable risk levels and the appropriateness of risk control measures. Where risk assessments are done and potential hazardous conditions are identified. The hazards are then mitigated using signs, gates, guardrails, booms, buoys, drop lines, fencing, floatation devices, safety ladders, alarms or camera systems.[2] Reclamation also engages in educational hazard awareness and information programs for recreationalist using Reclamation lands and water.

IV. Conclusion

Reclamation's Occupational Safety and Health Program is constantly evolving to utilize the latest technologies and strategies to constantly improve effectiveness. It is built on the latest safety principles, policies, risk assessment, and best practices. It is supported by ongoing safety and occupational health training and education. The program continually adapts to advancing technology and responds to changing safety conditions, risk evaluation, and risk assessment to improve its effectiveness. The success depends on constant attention to what the tasks are and how they can be completed in a safe and effective manner. The success of the Safety and Occupational Health program requires ownership from all levels of employees within the organization.

[2] Reclamation will follow the risk assessment guidelines listed in *Guidelines for Public Safety Around Dams*, 2011, Canadian Dam Association.

V. Glossary

Hazard – Source of potential harm. A hazard can be a risk source.

Incident – The potential or actual interaction between a person and a hazard associated with operations.

Job Hazard Analysis – are used to describe how to perform a task step-by-step, any hazards associated with a task, and controls to mitigate these hazards.

Lagging Indicators – are metrics that measure an organization's incidents in the form of past statistics.

Leading Indicators – are metrics that measure preceding or indicating a future event used to drive and measure activities carried out to prevent and control injuries.

Risk – Effect of uncertainty of objectives. Risk is often characterized by reference to potential events and consequences or a combination of these. Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence.

Risk analysis – Process to comprehend the nature of risk and to determine the level of risk. Risk analysis provides the basis for risk evaluation (and decisions about risk treatment). Risk analysis includes risk estimation.

Risk evaluation – Process of comparing the results of risk analysis with risk criteria to determine whether the risk and/ or its magnitude is acceptable or tolerable. Risk evaluation assists in the decision about risk treatment.

Risk Identification – Process of finding, recognizing and describing risks. Risk identification involves the identification of risk sources, events, their causes and their potential consequences. Risk identification can involve historical data, theoretical analysis, informed and expert opinions and stakeholder's needs.

Risk treatment – Process to modify risk. Risk treatment can involve:

- Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk
- Removing the risk source
- Changing the likelihood
- Changing the consequences
- Sharing risks with other parties (including contractors, and vendors)
- Retaining the risk by informed decision.

Risk treatments that deal with negative consequences are sometimes referred as “risk mitigation”, “risk elimination’ ”risk prevention,” and “risk reduction”. Risk treatment can create new risks or modify existing risks.

Safety and Occupational Health Program – It is a process that defines actions designed to prevent accidents and occupational diseases. Some form of a process is required under 1970 OSHA legislation.

Safety Audit - is a systematic and, independent examination to determine whether activities and related results conform to planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve the Reclamation's policy and objectives.

Safety Inspection – is a formalized and properly documented process of identifying hazards at a facility.

Safety Management Evaluation – the change from a compliancy-based to a risk-based safety management requires a modification in oversight from compliance oversight to performance oversight. The review examines if the unit is effectively managing safety and health risks by using best industry practices; looks if resources are optimized by using efficient safety and health processes; if staff performance is improving because of effective safety and health education and training; and is their staff and employee satisfaction improving by providing an improved safety culture.

Yellow Book – the Reclamation Safety and Health Standards

VI. Acronyms

AHJ – Authority having jurisdiction

ANSI – American National Standards Institute

ANSI Z10 – American National Standards Institute Occupational Health and Safety Management Systems.

BOR – Bureau of Reclamation

CDSR – Collateral Duty Safety Representative

DASHO – Designated Agency Safety and Health Official

DSIS – Dam Safety Information System

DOI – Department of Interior

FA – Focused Audit

FAR – Federal Acquisition Regulation

IAS – Inspection and Abatement System

IDP – Individual Development Plan

JHA – Job Hazard Analysis

MOC – Management of Change

NIOSH – National Institute of Occupational Safety and Health

OSHA – Occupational Safety and Health Administration

PDCA – Plan, Do, Check, Act

PPE – Personal Protective Equipment

RAC – Risk Assessment Code

RSHS – Reclamation Safety and Health Standards (Yellow Book)

SAF – Safety

SAF PO1 – Reclamation Safety Policy

SAFE – Safety Aggregate Facility Evaluation

SME – Safety Management Evaluation

SMIS – Safety Management Information System

SOH – Safety and Occupational Health

USGS – United State Geological Survey

VII. Safety Program Diagram